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CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ▪ Dan Saltzman, Commissioner ▪ Dean Marriott, Director

May 13, 2010

Christopher Cora
Project Manager
U.S. Environmental Protection Agency Region 10
1200 6th Ave, Suite 900, ECL-115
Seattle, WA 98101-3140

Subject: Review of Remedial Investigation for the Harbor Oil Site

Dear Mr. Cora:

This letter provides comments from the City of Portland Bureau of Environmental Services (City) to the U.S. Environmental Protection Agency (EPA), based on our review of the Remedial Investigation (RI) for the Harbor Oil Site, which also includes the:

- *Draft Final - Baseline Ecological Risk Assessment for the Harbor Oil Study Area* (ERA)
- *Draft Final - Baseline Human Health Assessment for the Harbor Oil Study Area* (HHRA)

These documents, dated April 7, 2010, were prepared by Bridgewater Group, Inc. and Windward Environmental, L.L.C. on behalf of the Voluntary Group for the Harbor Oil Site. The Harbor Oil facility is located adjacent to city-owned Force Lake, North Lake and associated wetlands. Hazardous substances from the Harbor Oil facility have resulted in contamination of these properties.

The Columbia Slough watershed is home to more than 170 species of birds, 26 species of fish, 18 species of mammals, 3 species of reptiles and 4 species of amphibians. The watershed and its lakes and waterways provide local, regional and internationally significant habitat for both resident and migratory birds and aquatic creatures. The Harbor Oil site is located immediately adjacent to a City designated "Anchor Habitat[1]" (Vanport Wetlands) and functions as a part of that habitat complex, and as a connector between other anchor habitats at Smith & Bybee Wetlands and Heron Lakes Golf Course.

Force Lake is heavily used by our citizens. A recent City "Angler Survey" documented that anglers know about the lake and plan to use the fish they catch for food. Internet fishing sites carry information about fish caught at the lake. Force Lake was stocked by ODFW and the Bass and Panfish Club to provide angling opportunities for Portland citizens and to bolster a local recognized fishery.

Bird watchers frequently visit the lake, and their reports of birds at Force Lake appear on birder websites. A description of Force Lake bird use is also contained in "Wild in the City" 2000, by

[1] Anchor habitats are highly valuable large, contiguous habitat complexes that are composed primarily of natural habitats and managed for primarily for natural resources/wildlife

M.J Cody and Mike Houck, and "Birding in Portland and Multnomah County," 2004 by Dr. John Fitchen. Bird use is constant throughout the year and Fitchen describes use by ducks, grebes and shorebirds, especially during the time of year when the lake's muddy edges are exposed. Golfers use the area year round, and have been seen retrieving golf balls from Force and North Lake.

A thorough and complete evaluation and cleanup of Harbor Oil is important to the City in order to achieve its watershed health goals (for hydrology, physical habitat, water quality and biological communities) as described in our 2006 Portland Watershed Management Plan and to protect the health of our citizens. While Harbor Oil is a relatively small site, its size should not influence the rigor of the analysis of data and risks associated with the site.

The City's comments on the Remedial Investigation (RI) are presented below:

1. Groundwater / surface water connections should be further characterized prior to finalizing the RI report. Concurrent groundwater and surface water (Force Lake and North Lake) elevations should be mapped over time to characterize and evaluate groundwater/surface water interactions and to determine if and when groundwater is discharging into wetlands or lakes within the Study Areas (i.e., facility). Areas of potential groundwater should be identified and transition zone water sampling should be considered dependent on monitoring results. Groundwater maps presented in Appendix L should be revised to include surface water elevations and to identify potential discharge areas and/or data gaps.

2. Force Lake surface water sampling frequencies are inadequate to fully assess the potential risks associated with surface water or identify any trends in the data. Seasonal variations in surface water quality should be characterized. One sample from the wet season does not adequately characterize the nature and extent of the surface water quality. Additional data are needed to understand the connections between groundwater, stormwater, and surface water quality in order to fully characterize the hydrologic system and evaluate potential risks associated with these pathways and the potential for recontamination of Lake sediments from these pathways.

3. The potential for shallow contaminated groundwater to migrate to the wetlands, Force Lake, or offsite via current and historic preferential pathways (e.g., site utilities) should be evaluated.

4. Stormwater discharging from the Harbor Oil site to the adjacent wetland and Force Lake has not been characterized for contaminants of interest. The current monitoring program under the existing NPDES permit is limited and does not require monitoring of all site COIs. In addition, NPDES monitoring data are not provided and evaluated in the RI. Stormwater solids samples should be collected from all site catch basins and the oil/water separator and analyzed for all site COIs. These data should be used to identify what contaminants are entering the site stormwater conveyance system and may be discharging to adjacent wetlands and Force Lake. Representative stormwater

samples should be collected and analyzed for all site COIs (PCBs, DDT, dioxins, metals, PAHs, etc.) during at least four storms. Stormwater discharges should be sampled in accordance with DEQ's 2009 *Stormwater Sampling Guidance* and DEQ and EPA's *Portland Harbor Joint Source Control Strategy* (2005). Guidance specifies sample collection either within the first 30 minutes of site runoff to evaluate "first-flush" conditions or within the first 3 hours of discharge. Stormwater data should be required to:

a. Evaluate the effectiveness of the existing stormwater treatment system (oil/water separator system);
b. Assess whether additional onsite remedial measures or improved stormwater treatment are needed to control offsite discharges of hazardous substances;
c. Characterize discharges for evaluation in the HHRA and ERA; and
d. Determine if ongoing discharges continue to contaminate Force Lake (water column, sediments, biota, etc.) or will re-contaminate the lake sediment following any required remedial actions.

5. The RI should fully describe stormwater flow at the site. The RI should provide:
   a. The estimated drainage area for each catch basin;
   b. Areas of stormwater infiltration (e.g., potential accumulation of COC in surface soils, or groundwater impacts) should be defined;
   c. Areas with ponding or overland stormwater flow should mapped and described;
   d. The role of the berms in directing or controlling stormwater flow, ponding, etc. should be discussed.
   e. Maps should be provided to illustrate the key elements of the site stormwater system including current and historic catchbasins, conveyance lines, erosional features, flow directions, ponding, drainage basins, etc.
   f. The RI should present available information documenting historic drainages on the property and nearby before the property was filled and the golf course developed to identify potential preferential pathways.

6. The RI does not address the potential presence of dioxin/furans in various media (soil, sediments, stormwater) at the facility. Dioxins/furans may have been present in the used oils processed at the facility or may have been created during the 1979 fire.

7. Additional characterization of the earthen berms appears warranted. The RI report states that the "earthen berm was constructed around the northwest and southwest sides of the Facility, apparently from soil impacted by releases caused by the fire." Concentrations of hazardous substances in berm material and the physical characteristics (e.g., erodiblity, presence of burrowing mammals, etc.) of the berm should be further evaluated as part of the RI and risk assessment activities.

8. The RI indicates that the 1988 NPDES permit covered treated stormwater and groundwater dewatering discharges. The RI should describe dewatering activities (e.g., location, purpose, volume) and the quality of groundwater discharges.

9. The RI should further describe the history of the stockyard and cattle truck washing and include a discussion about these activities as a potential source of DDT and other pesticides. Aerial photographs and historic maps should be used to assess potential historic drainage patterns and how these may be associated with the known distribution of these pollutants.

10. The RI notes that foundry sand is present in near surface soils (0 to 3 feet below ground surface). This sand should be evaluated as a potential source of metals, petroleum hydrocarbons, and PCBs to groundwater (e.g., leachability) and stormwater (e.g., ability for contaminants to be transported in stormwater).

11. The RI report should present a detailed discussion of free product identified onsite. Additional characterization is warranted based on consideration of the following:
    - Monitoring well construction. The groundwater monitoring well network is inadequate to evaluate presence of LNAPL. Groundwater elevations are often above the top of the monitoring well screen interval preventing the observation and/or measurement of LNAPL.
    - Inadequate delineation of LNAPL. The presence or absence of LNAPL should be supported by reviewing detailed soil boring logs and soil analytical results. This information should be carefully reviewed and evaluated to determine whether adequate information exists to discount the presence of NAPL and to identify data gaps. Maps and cross sections should be prepared showing the estimated horizontal and vertical extent of LNAPL (both free product and residual product).
    - LNAPL characterization is incomplete. The RI should clearly describe all LNAPL sampling performed and tabulate associated results. Table ES-2 indicates that TPH, PAHs, cPAHs and PCBs were detected in NAPL with many method reporting limits elevated (e.g., DDT 1,200 U). Also, numerous pesticides were detected in the 2000 LNAPL sample.
    - Description of former LNAPL extraction activities is inadequate. A clear description of efforts to extract LNAPL from monitoring wells and extraction wells should be provided. This description should tabulate observations of LNAPL thickness, locations observed, extraction method (e.g., skimming, total fluids, LNAPL pump), cumulative LNAPL volumes removed, time periods extraction system operated, etc. The description should provide the rationale for initiating and terminating LNAPL extraction activities.
    - Significance of LNAPL is downplayed. In numerous locations throughout the report LNAPL is described as "not a significant component" of site risks. This seems

inappropriate without the RI fully describing the nature and extent of LNAPL at the site and further development of the conceptual site model.

- The RI and/or risk assessments should evaluate whether LNAPL at the site is a principal threat under CERCLA and/or a "hot spot" under Oregon Cleanup Statutes.

12. The ERA and HHRA do not provide a summary the nature and extent of contamination at the Harbor Oil site and a conceptual site model (CSM) summarizing the sources of contaminants, potential contamination migration pathways, media impacted, fate and transport of site contaminants, land use, etc. Without a clearly presented conceptual site model the completeness and adequacy of the risk assessments cannot be determined. The introductory sections of the risk assessment reports should present the site CSM and include:
    a. Contaminant sources and a description of whether these sources are ongoing or have been controlled.
    b. Contaminant migration pathways (soil erosion, soil leaching, stormwater discharge, wind erosion, groundwater discharge to surface water, vapor transport, groundwater transport, vehicular tire tracking, etc.)
    c. The function of the on-site berm (e.g., spill control, stormwater management, flood control).
    d. The nature and extent of representative site contaminants including:
        i. The presence of nonaqueous phase liquids (NAPL). NAPL documented at the site is not discussed or evaluated in either risk assessment.
        ii. NAPL on-site is documented to contain PCBs and pesticides. The risk assessments address the fate and transport of the NAPL and determine whether it poses unacceptable risks to the public wetlands and lakes.
    e. The adequacy of the site characterization activities. This discussion should demonstrate that
        i. Contamination has been fully characterized
        ii. Adequate data exist to perform the risk assessments
        iii. Assumptions in the risk assessments can be supported
    f. Maps with concentrations contours for selected pollutants (metals, PCBs, DDT, etc.) for each media (surface soil, subsurface soil, sediment, groundwater). These maps could be used to verify contaminant sources and hot spots (principal threats) have been identified and that site characterization is complete or site data gaps. These maps would also help in defining or supporting exposure areas used in the risk assessments.

13. The RI should present a discussion of risks which exceed Oregon's definition of acceptable risk (e.g., 1×10^{-6} excess cancer risk) and whether or not "hot spots" are present.

14. The RI and risk assessment reports identify data rejected for various reasons. While the rejection of data may be reasonable, based on the information represented it is unclear whether the rejection of this data results in misrepresenting the nature and extent of contamination and biasing the risk assessments low. Often early sampling data are biased toward areas of higher concentrations in order to identify potential contaminant source areas and the types of contaminants present. Data collected later in the site characterization process are often focused on defining the extent of contamination and concentrations may be lower and complete analyses may not be performed. Rejection of early data from source areas could basis the estimated exposure point concentration estimates and subsequent risks low and misrepresent the contaminant sources. In addition, it is unknown if potential contaminants of concern may have been omitted due to the data rejection. The RI report should present the rejected data in tables and on appropriate maps to demonstrate that the data used in the RI and risk assessment exposure point concentrations are representative of site conditions and do not bias the risk estimates. For example, the 2003 samples obtained and analyzed during the excavation for the new base-oil plant are not discussed. This information should be presented even if the data were determined to not meet the DQOs for use in risk assessment. Significantly impacted soil was identified in several locations and the lack of discussion implies a lack of characterization and may represent a significant data gap.

15. RI tables and figures presenting analytical results for various media should include all data rejected for use in the risk assessments and/or data that don't meet RI DQOs. Data should be provided for informational purposes. In addition, all results where the method reporting limit is greater than the appropriate screening level should be highlighted.

16. The RI should screen surface water data against appropriate concentrations protective of fish consumption (e.g., Portland Harbor Joint Source Control Strategy, EPA and DEQ, 2005) and sediment/soil against DEQ's bioaccumulation SLVs. Consideration should be given to requiring additional data collection and analyses of surface water and stormwater for PCB congeners.

17. Risks should be evaluated for North Lake. Contaminants were detected in sediment in both Force Lake and North Lake.

18. The basis for using single exposure areas for estimating on-site and off-site risks is not provided. Current and future site uses and use patterns should be considered along with the contaminant distribution patterns to determine whether the site should be subdivided into smaller exposure areas for evaluating the completeness of site characterization activities and for calculating risks to human health and ecological receptors.

19. The City is concerned with the representation of background risks in the RI, ERA and HHRA. It is not clear that the data used for anthropogenic background is appropriate. If this approach carried into the final RI, risk assessments and feasibility study, we request that EPA and DEQ require development of a robust data set and methodology for data analyses before using this data for risk management decisions.

20. Based on known consumption of fish from Force Lake by recreational fishermen and ecological receptors, fish tissue data should be collected prior to approval of the final RI report.

21. The ERA should include a discussion regarding the representativeness and completeness of the data used to estimate potential risks in wetlands, Force Lake and North Lake. Any known data gaps should be identified.

22. The ERA does not evaluate the potential groundwater to surface water pathway. The conceptual site model should evaluate this pathway and provide appropriate figures showing key assumptions regarding this pathway. Groundwater discharge areas should be identified and fully characterized (e.g., transition zone water).

23. The City recommends that bioassay data be collected to assess the toxicity of lake sediments. The presence of petroleum hydrocarbon contamination and collocated contaminants in lake sediment suggest that direct measurements of sediment toxicity should be assessed using bioassays.

24. Table 2-2. Birds Observed on or near Force Lake-and Table 2-3 Birds Observed in Pen 1 and supporting text discuss 23 Special Status Species* birds, but does not include Special Status amphibians, reptiles or mammals. There are other errors and omissions in this section of the report. Please update and correct the use of the city, state and federal terminology as applied to species identified in the document.

    * "Special Status Species" is a City term that applies to amphibian, reptile, bird and mammal species whose range includes Portland, and that are listed or have been identified in one of more of the following: US Fish and Wildlife, Service (Candidate, Listed Endangered, Listed Threatened, Species of Concern); Oregon Department of Fish and Wildlife (Listed Endangered, Listed Threatened, Sensitive Species, State Strategy Species for the Willamette Valley Ecoregion); Oregon Natural Heritage Information Center Ranked (1-4); OWEB Priority; Partners In Flight Focal Species; NW Power and Conservation Council Willamette Basin Subbasin Plan Focal Species; American Bird Conservancy & National Audubon Society Watchlist.

25. The Western Pond Turtle, a threatened species, was documented at Force Lake in a city survey in 2009. This is not noted in the revised ERA.
26. The HHRA focuses on the number of fish in Force Lake. The City suggests that the approach be changed to look at what the sustainable fish yield would be from a "healthy lake" that has not be significantly impacted by hazardous substance releases from Harbor Oil.

27. Force Lake and North Lake are publicly owned and the City is working toward restoring the habitat and resources in these areas. The City is concerned that the usage of Force Lake may be underestimated and based on infrequent observations. It is unknown whether the reported observations are reliable, verifiable and made during the time when fishing or recreation on the lake would be occurring (mornings, evenings, weekends). A quick Google search for Force Lake found it listed on at least a couple of fishing websites. Anglers reported their catch online which suggests higher usage.

The City appreciates the opportunity to provide these comments and to collaborate with EPA to ensure a comprehensive evaluation of the Harbor Oil Superfund site. Portland has adopted watershed goals that seek to restore and enhance watersheds for ecological health and the health and enjoyment of our citizens. We look forward to your attention to the concerns raised in this letter. If you have any questions, please contact me at 503-823-7268.

Sincerely,

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Columbia Slough Watershed Program

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